CLAIMS

1. A method for detecting a low rigid force, comprising the steps of:

preparing a pair of substrates opposing each other and undergoing displacement in a direction changing the space between the substrates by an impact force applied thereto;

interposing at least one absorption detection mechanism between the substrates, the absorption detection mechanism being made by integrating impact absorbing means and force detecting means in one body; and

detecting a force applied between the substrates by the force detecting means while absorbing an impact force applied between the substrates by elasticity of the impact absorbing means.

2. The method according to Claim 1, wherein the impact absorbing means comprises a columnar low rigid member having rubber elasticity while the force detecting means comprises a displacement sensor for detecting a force produced in accordance with a strain of the low rigid member in a longitudinal direction.

3. The method according to Claim 1, wherein the impact absorbing means comprises a pressure chamber having working fluid enclosed therein while the force detecting means comprises a pressure sensor for detecting a pressure in the pressure chamber as a force.

4. A low rigid force detecting device, comprising:

a pair of substrates opposing each other and undergoing displacement in a direction changing the space between the substrates by an impact force applied thereto; and

at least one absorption detection mechanism interposed between the substrates,

wherein the absorption detection mechanism integrally comprises impact absorbing means for absorbing an impact force applied between the substrates by an elastic force and force detecting means for detecting a force applied between the substrates.

5. The device according to Claim 4, wherein the impact absorbing means comprises a columnar low rigid member having rubber elasticity while the force detecting means comprises a displacement sensor for detecting a force produced in accordance with a strain of the low rigid member in a longitudinal direction.

6. The device according to Claim 4, wherein the impact absorbing means comprises a pressure chamber disposed between both the substrates and having working fluid enclosed therein while the force detecting means comprises a pressure sensor for detecting a pressure in the pressure chamber as a force.

7. The device according to any one of Claims 4 to 6, wherein while a pair of the substrates have degrees of freedom with regard to a relative displacement in the Z-axial direction and relative rotational displacements about the X- and Y-axis, a relative rotational

displacement about the Z-axis and relative displacements in the X- and Y-axial directions are restricted.

8. The device according to Claim 7, wherein one substrate of the pair of the substrates comprises arc concave portions, respectively formed in a plurality of sides, and ribs formed on part of the internal surface of each of the concave portions while the other substrate comprises columnar stoppers which are fitted into the concave portions so as to come in contact with the ribs, and

wherein with the concave portions, the ribs, and the stoppers, the substrates are restricted in a relative rotational displacement about the Z-axis and relative displacements in the X- and Y-axial directions while having degrees of freedom with regard to a relative displacement in the Z-axial direction and relative rotational displacements about the X- and Y-axis.